

Work Order ID 131418

Wednesday, April 08, 2015 12:48:05 PM

131418

Page 1

Item ID: D5149-043W

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Aft Step Base Assembly Weldment

Start Date: 4/8/2015 Start Qty: 16.00

16

Cust Item ID:

Required Date: 4/8/2015 Req'd Qty: 16.00

16

Customer:

Reference:

Approvals: Process Plan: MLS Date: 15-04-08

Tooling:

Date:

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D5149

B

110

Weld per dwg A/R Aluminum rod Batch 129399 0.00***110***

Large Fab

Memo

0.00

Large Fab

USE DT10135 WELDING FIXTURE TO WELD D5149-043

16 15-08-12

120

QC9- Inspect visual per QSI004- Fusion Welds 0.00

120

QC

Memo

0.00

Quality Control

(15) 15-08-13 DAS
9
9-89**P.T.O.**

130

QC5- Inspect part completeness to step on W/O 0.00

130

QC

Memo

0.00

Quality Control

(15) 15-08-13 DAS
9
9-89

DQA:

Date: 15/08/02

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed

Date: 15/09/01

Work Order update only ☐

Work Order: 131418		DISPOSITION		AGAINST DEPARTMENT/PROCESS			
Part No. 25149-04341		Rework ☐		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐
NCR No. 15-5290		Scrap ☒		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐
		Use-as-is ☐		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
		Suspected Unapproved ☐		Large Fab ☒	Composite ☐	Supplier ☐	
Date: 15-08-13		Step #: 110		QTY Effective: ①		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition				DAS 9 9-89 15-08-13	
lots of porosity found in weld		scrap + destroy - no replace				Completed By 15-08-13	
L.C. dirt in material						Lead hand / Supervisor Approval Verification DAS 38 9-89 AUG 13 2015	
						QC / QA Coordinator Approval DAS 9 9-89 15-08-13	
Root Cause		FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	☒ Weld	Part Incorrect ☐		
*Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☒	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐						
Misidentified ☐	Past Due ☐	OTHER :					

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
Root Cause				FAULT CATEGORY																					
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐															
OTHER : _____																									

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Page 3

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N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Aft Step Base Assembly Weldment

Start Date: 4/8/2015 Start Qty: 16.00

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Cust Item ID:

Required Date: 4/8/2015 Req'd Qty: 16.00

16

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

170

QC3- Inspect Part Finish

0.00

170

QC

Memo

0.00

Quality Control

(15)

JB

15-08-19

180

Wing Walk as per dwg QSI005 4.4 Bat

M132594

0.00

180

HandFinish

Memo

0.00

Hand Finishing

*wing walk to tip
of part is acceptable
A.P. 15.08.18*

15 18-8-20. 333

190

QC3- Inspect Part Finish

0.00

190

QC

Memo

0.00

Quality Control

(15)

DAS
38
9-89

15-08-20

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Work Order ID 131418

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Page 4

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Required Date: 4/8/2015 Req'd Qty: 16.00

16

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

200

Identify as per dwg & Stock Location: GA

0.00

200

Packaging

Memo

0.00

DAS
30
9-8915AUG 24 2015

Packaging

210

QC21- Final Inspection - Work Order Release

0.00

210

QC

Memo

0.00

Quality Control

ML5AUG 24 2015SU 20150824

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
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Picklist Print

Wednesday, April 08, 2015 12:48:14 PM

Page 1

Work Order ID: 131418

131418

Parent Item: D5149-043W

D5149-043W

Parent Item Name: Aft Step Base Assembly Weldment

Start Date: 4/8/2015

Required Date: 4/8/2015

Start Qty: 16.00

Required Qty: 16.00

Comments: IPP REV:A 14.12.15 NEW ISSUE DD VERF;JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D5149-5		Manufactured	No				Each	42.0000		16			
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D5149-5

Step Cap

15-08-11
JBL

Location	Loc Qty	Loc Code
prelim	3	
124088	3	
WA001 131788	39	
129795	38	
130113	1	

D5149-7		Manufactured	No				Each	28.0000		16			
---------	--	--------------	----	--	--	--	------	---------	--	----	--	--	--

D5149-7

Aft Step Base

15-08-11
JBL

Location	Loc Qty	Loc Code
prelim	2	
127185	2	
WA004 131673	26	
129648	20	
130109	6	

D5149-9		Manufactured	No				Each	22.0000		16			
---------	--	--------------	----	--	--	--	------	---------	--	----	--	--	--

D5149-9

Aft Step

15-08-11
JBL

Location	Loc Qty	Loc Code
prelim 031103	2	
127199	2	
WA001 131936	20	
130009	16	
130111	4	

DQA: _____ Date: _____



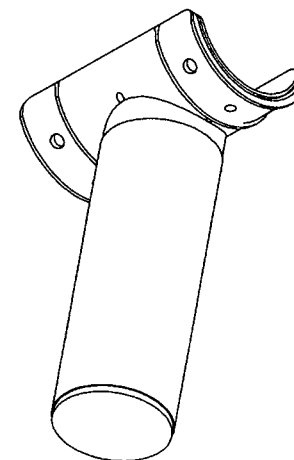
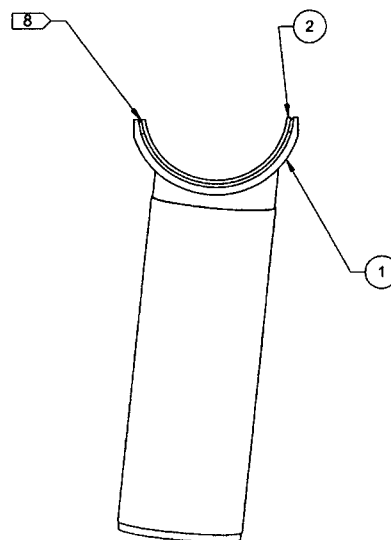
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

ITEM	QTY -041	P/N	DESCRIPTION
	X	D5149-041	FWD STEP ASSEMBLY
1	1	D5149-041W	FWD STEP BASE WELDMENT
2	1	D5151-1	CLAMP CUSHION



131418 MJS
1504-08

RELEASED

2015 FEB 09
RCN 15-516 qf

D5149-041 FWD STEP ASSEMBLY

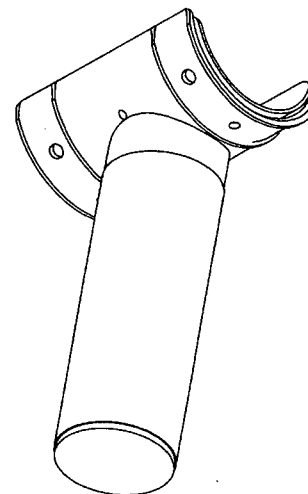
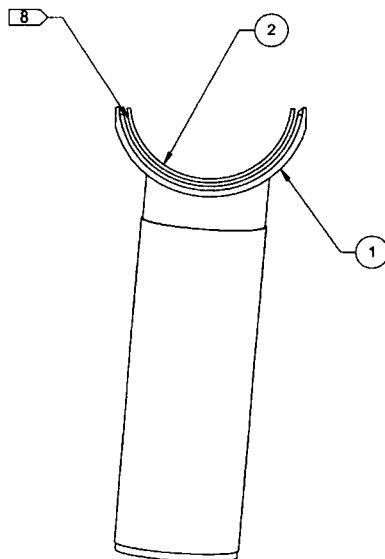
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.69 lbs
- 8) BOND D5151-1 CUSHION TO D5149-041W BASE WELDMENT USING 3M 1300L ADHESIVE

B	COMPLETE RE-DESIGN, SEE PREVIOUS REV FOR DETAILS	DB	15.01.14
A	NEW ISSUE	DB	14.10.25
REV.	DESCRIPTION	BY	DATE
DESIGN	DB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DB		
CHECKED	AP	DRAWING NO.	REV. ☒
MFG. APPR.	DD	D5149	SHEET 1 OF 11
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STEP ASSEMBLY	NTS
DATE	15.01.14	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

APPROVED

ITEM	QTY	P/N	DESCRIPTION
	X	D5149-043	AFT STEP ASSEMBLY
1	1	D5149-043W	AFT STEP BASE WELDMENT
2	1	D5151-3	CLAMP CUSHION



D5149-043 AFT STEP ASSEMBLY

RELEASED

2015 FEB 09

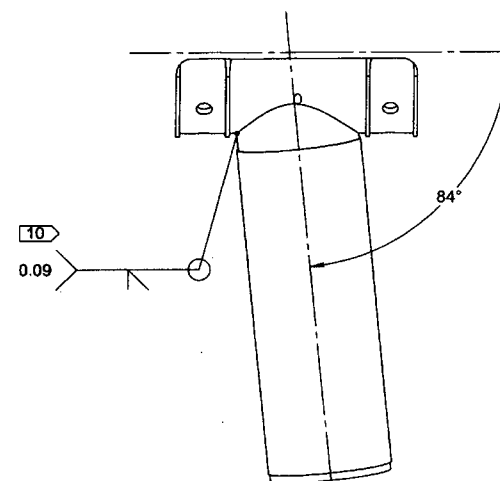
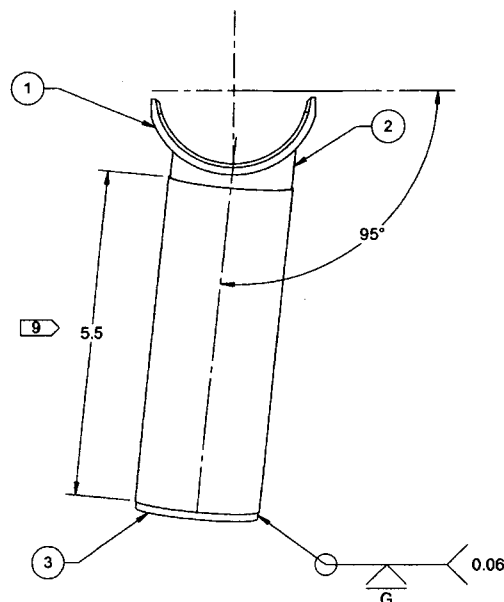
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.87 lbs
- 8) BOND D5151-3 CUSHION TO D5149-043W BASE WELDMENT USING 3M 1300L ADHESIVE

APPROVED

DESIGN	DB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DB		
CHECKED	AP	DRAWING NO.	REV. A
MFG. APPR.	DD	D5149	SHEET 2 OF 11
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STEP ASSEMBLY	NTS
DATE	15.01.14	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

ITEM	QTY. 041W	P/N	DESCRIPTION
	X	D5149-041W	FWD STEP BASE WELDMENT
1	1	D5149-1	FWD STEP BASE
2	1	D5149-3	FWD STEP
3	1	D5149-5	STEP CAP



D5149-041W FWD STEP BASE WELDMENT

RELEASED

2015 FEB 09

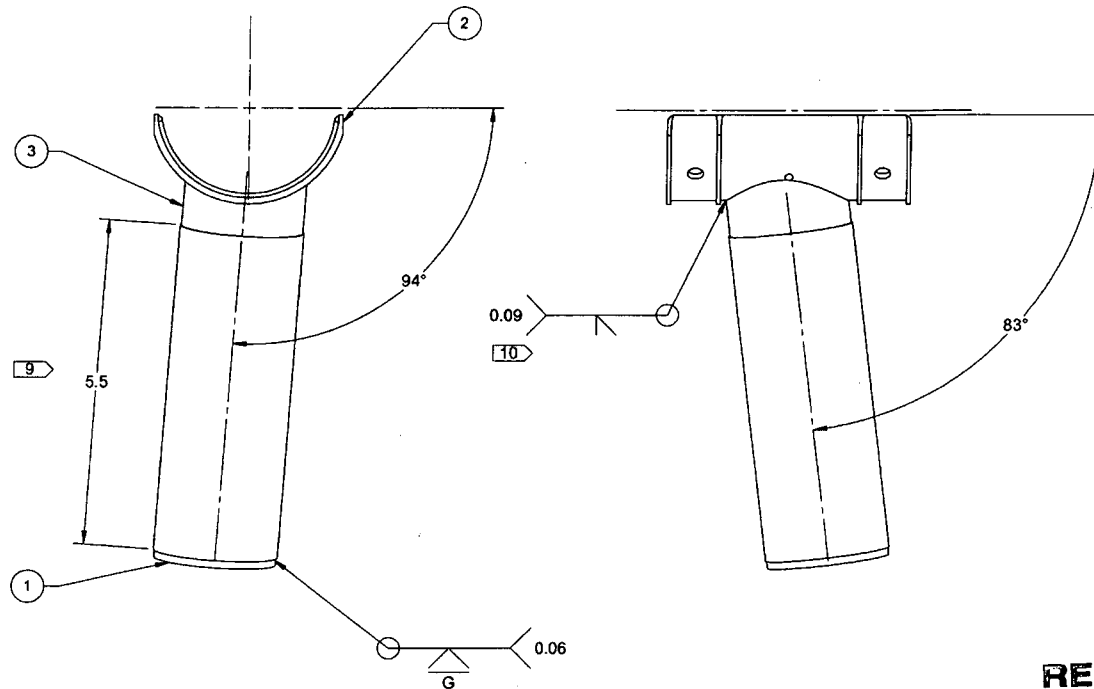
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "WHITE" (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.67 lbs
- 8) WELDING PER DART QSI 004
- 9) APPLY BLACK ANTI-SKID PAINT TO STEP TUBE, ALL AROUND PER DART QSI 005 4.4
- 10) ALIGN D5149-3 FWD STEP WITH EDGE OF ALIGNMENT HOLES IN D5149-1 FWD STEP BASE PRIOR TO WELDING

APPROVED

DESIGN	DB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DB		
CHECKED	AP	DRAWING NO.	REV. A
MFG. APPR.	DD	D5149	SHEET 3 OF 11
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STEP ASSEMBLY	NTS
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ITEM	QTY-043W	P/N	DESCRIPTION
	X	D5149-043W	AFT STEP BASE WELDMENT
1	1	D5149-5	STEP CAP
2	1	D5149-7	AFT STEP BASE
3	1	D5149-9	AFT STEP



RELEASED

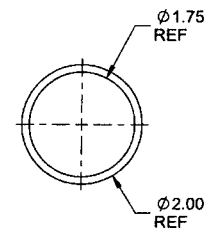
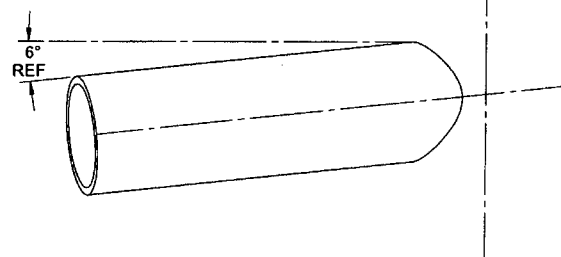
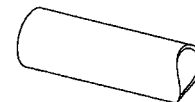
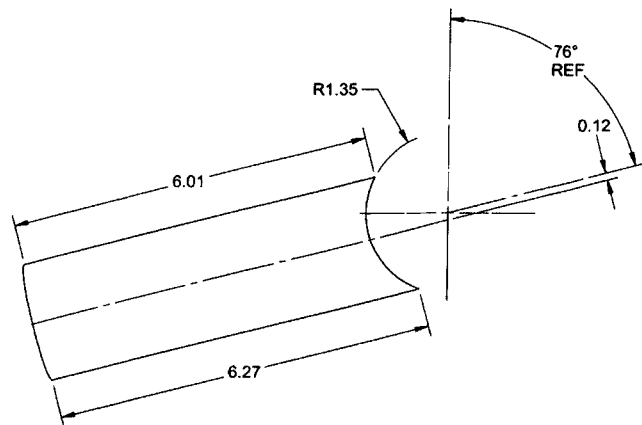
2015 FEB 09

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "WHITE" (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.67 lbs
- 8) WELDING PER DART QSI 004
- 9) APPLY BLACK ANTI-SKID PAINT TO STEP TUBE, ALL AROUND PER DART QSI 005 4.4
- 10) ALIGN D5149-9 AFT STEP WITH EDGE OF ALIGNMENT HOLES IN D5149-7 AFT STEP BASE PRIOR TO WELDING

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DRAWN	DB		
CHECKED	AP	DRAWING NO.	REV. A
MFG. APPR.	DD	D5149	SHEET 4 OF 11
APPROVED	HS	TITLE	SCALE
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D5149-3 FWD STEP

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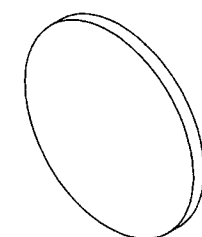
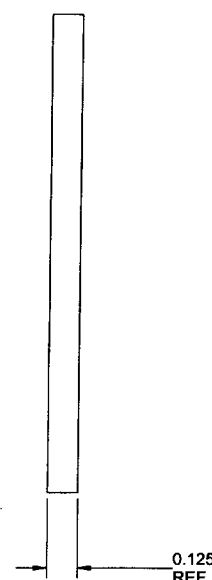
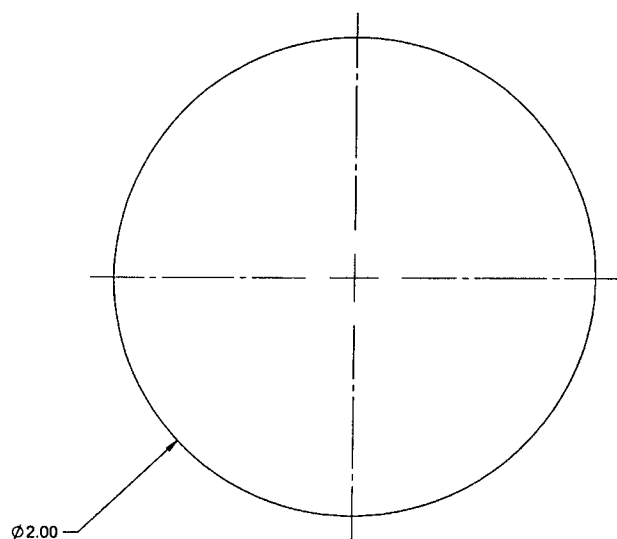
2015 FEB 09

NOTES:

- 1) MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 4082 OR AMS 4083 OR ASTM B210 OR ASTM B241
REF DART SPEC M6061T6T2.000W0.125
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.42 lbs

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D5149-5 STEP CAP

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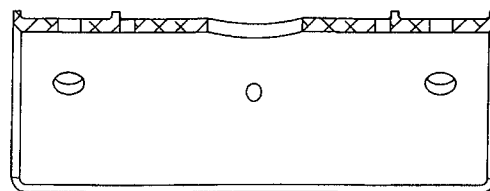
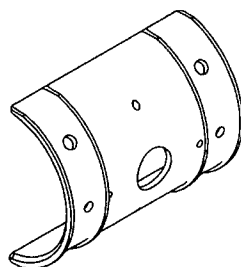
2015 FEB 09 *4p*

NOTES:

- 1) MATERIAL: 6061-T6 (OR 6061-T62) ALUMINUM SHEET, 0.125 THICK
PER QQ-A-250/11 OR AMS-QQ-A-250/11 OR AMS 4025 OR AMS 4027 OR ASTM B209
REF DART SPEC M6061T6S.125
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.04 lbs

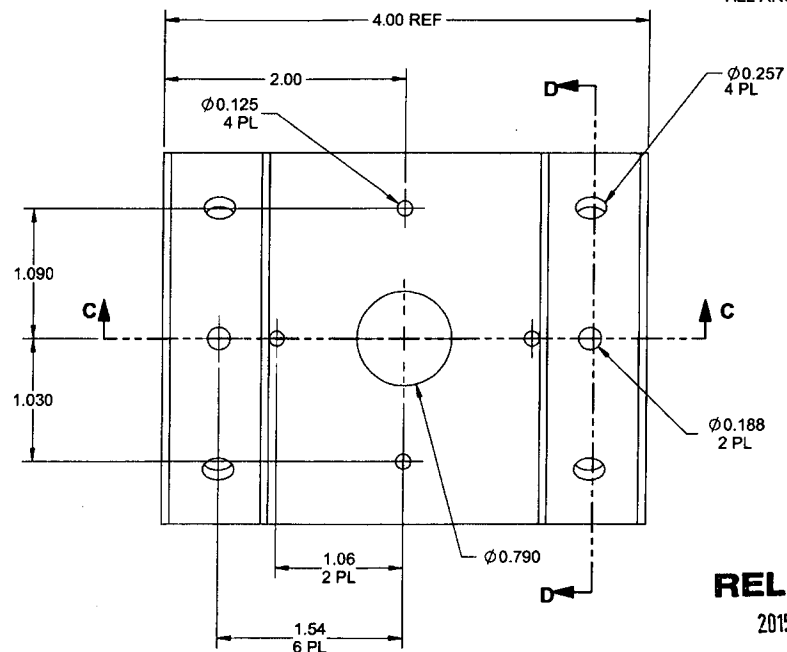
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DESIGN	DB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DB		
CHECKED	AP	DRAWING NO.	REV. <i>A</i>
MFG. APPR.	DD	D5149	SHEET 7 OF 11
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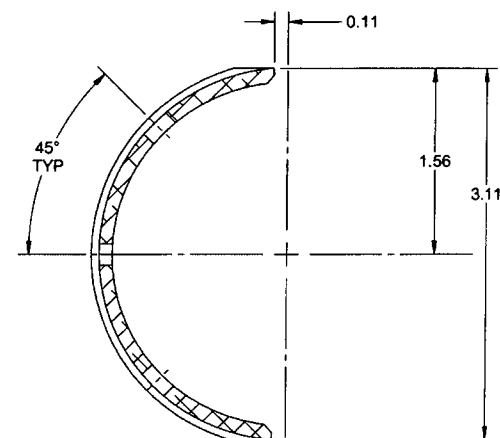


SECTION C-C

0.06 X 45° CMF
ALL AROUND INSIDE EDGE



D5149-7 AFT STEP BASE
(MAKE FROM D5149-7TRN)



SECTION D-D

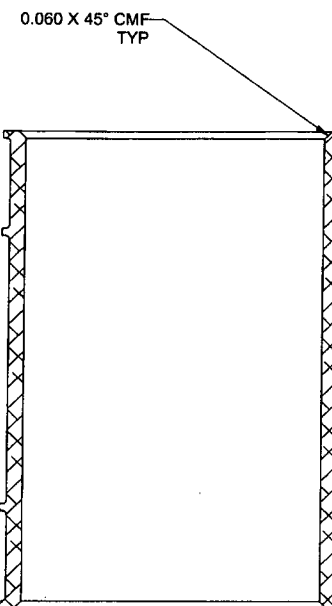
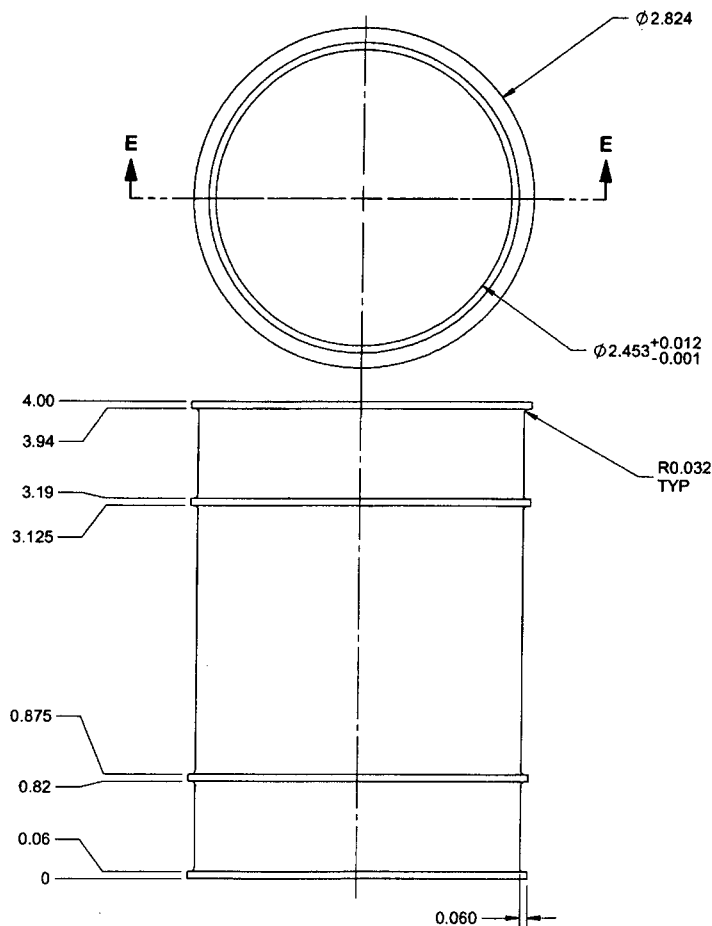
RELEASED

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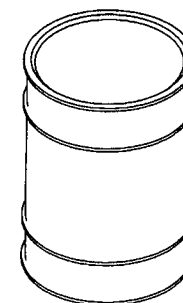
- NOTES:**
- 1) MATERIAL: MAKE FROM D5149-7TRN
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 0.30 lbs

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DESIGN	DB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DB		
CHECKED	AP	DRAWING NO.	REV. A
MFG. APPR.	DD	D5149	SHEET 8 OF 11
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SECTION E-E



D5149-1TRN TURNING DETAIL

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2015 FEB 09 *47*

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-200/8 (OR AMS 4160) OR ASTM B211 OR ASTM B221
REF DART SPEC. M6061T6R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.41 lbs

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DESIGN	DB	DART AEROSPACE LTD	
DRAWN	DB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AP	DRAWING NO.	REV. <i>X</i>
MFG. APPR.	DD	D5149	SHEET 9 OF 11
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DE APPR.	DS	STEP ASSEMBLY	NTS
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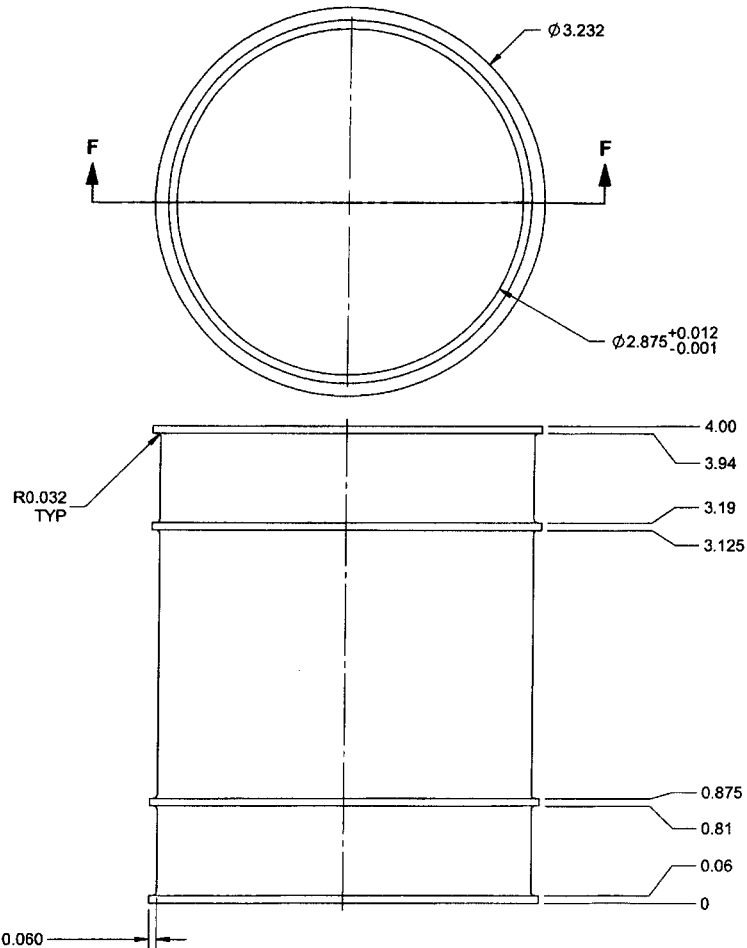
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D

C

B

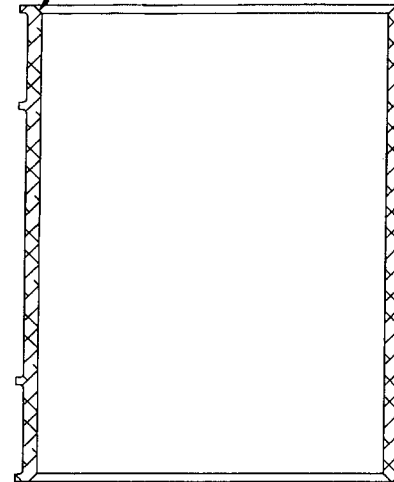
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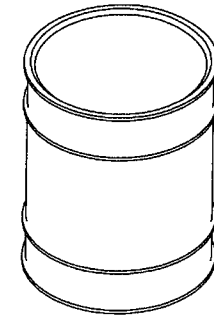
D5149-7 TRN TURNING DETAIL

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-200/8 (OR AMS 4160) OR ASTM B211 OR ASTM B221
REF DART SPEC. M6061T6R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.41 lbs

0.060 X 45° CMF
TYP

SECTION F-F

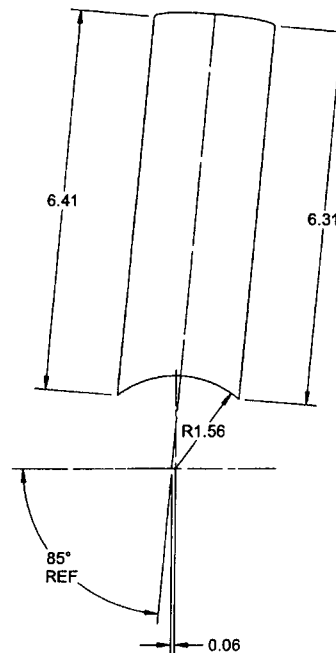
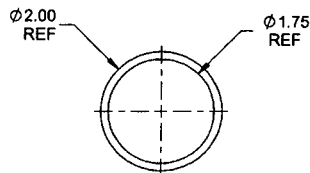
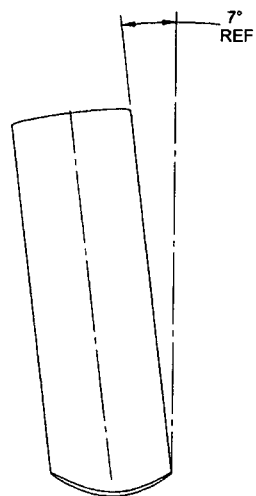


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DRAWN	DB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AP	DRAWING NO.	REV. A
MFG. APPR.	DD	D5149	SHEET 10 OF 11
APPROVED	HS	TITLE	SCALE
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D5149-9 AFT STEP

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2015 FEB 09

NOTES:

- 1) MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 4082 OR AMS 4083 OR ASTM B210 OR ASTM B241
REF DART SPEC M6061T6T2.000W0.125
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.44 lbs

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DESIGN	DB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DB		
CHECKED	AP	DRAWING NO. D5149	REV. ☒ B
MFG. APPR.	DD	SHEET 11 OF 11	
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STEP ASSEMBLY	NTS
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